DEPARTMENT HEALTH

STATE OF MINNESOTA

Office Memorandum

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TO : Andrew Dean, M.D., Director
Disease Prevention & Control Division

DATE: June 6, 1983

FROM : Michael P. Convery, Hydrologist
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MPC

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SUBJECT: Review of Proposal for A Breast Cancer Case-Control Study in St. Louis Park, Minnesota

I have reviewed the second draft proposal of Mr. Herman Gibb for the above-titled project. As in my previous review, some of my comments are simply technical corrections in the background text. Some other comments, again, deal with the dissecting of the City into zones served by certain municipal wells. My comments are listed in the order of appearance.

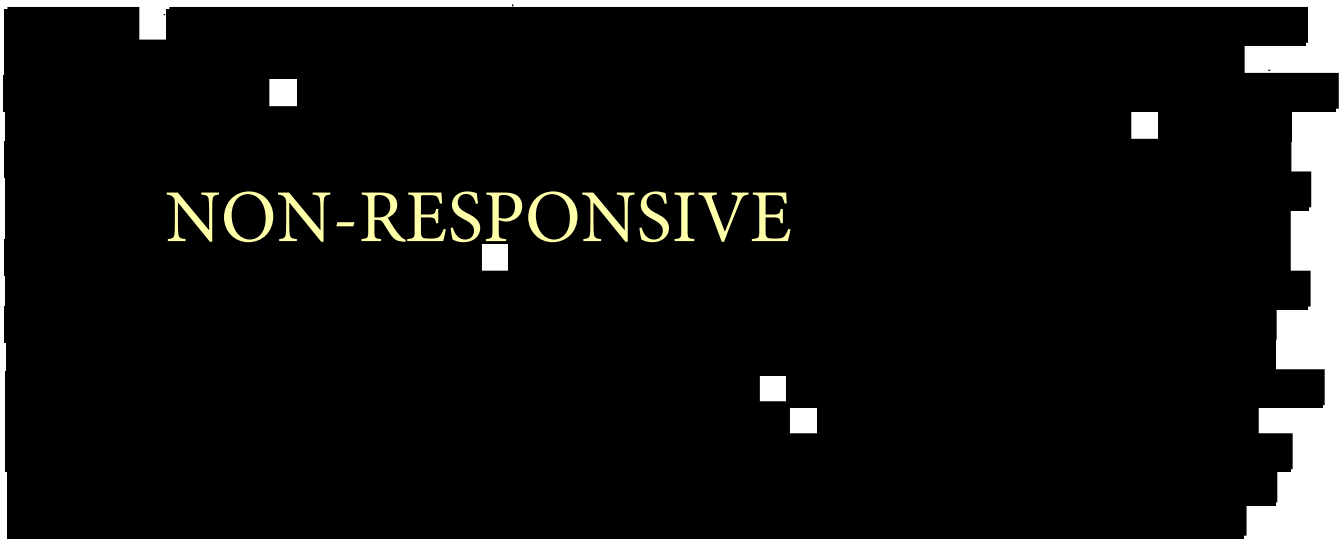
Page 1: Coal-tar was not used for treatment of wood products. It was the raw product which was distilled into a variety of fractions, including creosote oils, road tar, pitch, etc. Coal-tar and creosote entered the Republic Creosote supply well at some time, probably in the 1920's. Eight hundred to nine hundred gallons of coal-tar/creosote were removed from this well during the summer of 1982. This material appears to have been a major source of contamination of the Prairie du Chien-Jordan aquifer.

Page 2: Wells 10 and 15 are the only Prairie du Chien-Jordan wells in the well field one-half mile north of the Republic site. Well 3 is a St. Peter well and Well 11 is a Mt. Simon-Hinckley well. Wells 3 and 11 do not influence water levels in the Prairie du Chien-Jordan aquifer to any great extent. Wells 1 and 2 (St. Peter wells) were permanently abandoned in the fall of 1977. Wells 10 and 15 are, themselves, quite influential on determining groundwater levels and flow patterns in their vicinity. To compound the problem, the Republic Creosote supply well was a multiaquifer well, with downhole flow from the St. Peter to the Prairie du Chien-Jordan. This created a recharge mound in the Prairie du Chien-Jordan at the Republic well, with the steepest gradient being to the north when Wells 10 and 15 were active.

Pages 3-4: Under Mr. Gibb's classification scheme for assessing the degree of contamination, Wells 7 and 9 should be considered demonstrating a moderate degree of contamination for the heaviest degree of contamination ever shown, just looking at the levels of pyrene and acenaphthylene.

Page 9: The discussion of cancer incidence rates in Edina was not clear to me. In six years of testing, we have never detected contamination in the Edina municipal wells. It is not likely that Edina wells were ever contaminated in the past since St. Louis Park Wells 4 and 6 would tend to act as barrier wells in a southerly direction. These are among the oldest municipal wells in St. Louis Park.

Page 11: We are now in litigation with Reilly Tar & Chemical and have been in active litigation since the late 1970's.



Wells 7 and 9 were used solely for meeting summer peak demands and were typically operated for only 2-3 weeks annually. These wells could not be operated during periods of subfreezing temperatures. Thus, at most, these wells were used about 5% of the year, which would seem to significantly reduce the possible exposure.

In terms of oversimplification, the well system and distribution system have continued to evolve over time. For instance, Well 15 was installed in 1969, which raises a question of exposure duration. Also, wells are active or inactive in response to consumer demand, maintenance and repair, firefighting demand, and system development. The history of well use is quite complicated. A major point raised by Mr. Gibb is that the two major railroad corridors are barriers to the distribution system and that there are few lines crossing these corridors. Indeed, the corridors are significant obstacles, but there are some major lines crossing the corridors. Changes and expansions of the distribution system have happened continuously and will continue to occur. One cannot delineate discrete zones of service areas for a given well since the system is so dynamic. Thus, using census tracts for zones around wells may be too much of an oversimplification.

Another complicating factor is that there were historically a large number of domestic wells in St. Louis Park. A recent survey indicated over 1500 private wells in the City. Although few are being used now as a drinking water source, most did serve this function in the past.

Questionnaire 6;9: I would be very cautious in asking people the source of their drinking water supply in previous residences and jobs. I suspect most people have no idea or an incorrect idea of where their drinking water is obtained. Also, many communities have shifted from one source to another as the water supply systems develop so that the situation today will not reflect past conditions.

Questionnaire 7,8: Again, I believe that most individuals do not have a tight grasp on how much water they consume daily as an average and whether or not this use has changed in the last few years.

I hope that these comments are clear and concise. If you have any questions, please feel free to contact me.

MPC:mrs
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